No. 86-247

Supreme Court, U.S.
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In The

Supreme Court of the United States

October Term, 1986

GENERAL SIGNAL CORPORATION,

Petitioner,

v.

ALLIED TUBE & CONDUIT CORPORATION,

Respondent.

BRIEF FOR RESPONDENT IN OPPOSITION TO PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

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RULE 28.1 LISTING

Respondent, Allied Tube & Conduit Corporation, is part of ATCOR, Inc. Allied Tube & Conduit Corporation is affiliated with the following companies:

AFFILIATES	PERCENT OWNED
ATCOR Acquisitions, Inc., Subsidiary of ATCOR, Inc.	100
Charmglow Products, Inc., Subsidiary of ATCOR, Inc.	100
Hamiltonian Industries, Inc. of Mississippi, Subsidiary of Charmglow Products, Inc.	100

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FEDERAL REGULATION INVOLVED
37 C.F.R. Sec. 1.56
DUTY OF DISCLOSURE; FRAUD; STRIKING OR REJECTION OF APPLICANTS.

(a) A duty of candor and good faith toward the Patent and Trademark Office rests on the inventor, on each attorney or agent who prepares or prosecutes the application and on every other individual who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application. All such individuals have a duty to disclose to the Office information they are aware of which is material to the examination of the application. Such information is material where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent. The duty is commensurate with the degree of involvement in the preparation or prosecution of the application.

In The

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October Term, 1986

GENERAL SIGNAL CORPORATION,

Petitioner,

v.

ALLIED TUBE & CONDUIT CORPORATION,

Respondent.

BRIEF FOR RESPONDENT IN OPPOSITION TO PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

STATEMENT OF THE CASE

The Court of Appeals for the Federal Circuit agreed with the district court that General's patent is unenforceable as a result of inequitable conduct. This ruling arose from the intentional failure of the claimed inventor, Robert Philibert, to attribute authorship of a document he submitted to the Patent and Trademark Office ("PTO") in the application process. The document in question was a draft of a proposed standard for Intermediate Metal Conduit ("IMC"), the product to which the patent relates.

Responding to the second of three PTO rejections of Philibert's application, General submitted to the examiner an affidavit from Philibert along with a voluminous set of exhibits. General told the PTO that these materials were submitted "in order to fulfill applicant's stringent duty of candor . . . to furnish as complete a history as possible of the development of applicant's invention." (A.51.)

Absent from the materials was Philibert's disclosure paper, which purported to embody the conception of his claimed invention. General did include, however, a draft of a standard for IMC which Bernard Auerbach, an Allied employee, had written and submitted to Underwriter's Laboratories ("UL") on or about April 26, 1974. Missing from the standard, as submitted by General, was its cover page which would have identified Allied's authorship and which bore the April 26, 1974 date. (A.63.)

The standard was placed in General's submissions directly after a letter from Philibert to Jack Beall of Jones & Laughlin Steel Corp. (A.60.) In the letter, Philibert stated:

> [I]t occurred to me that you and other members of the Steel Conduit Industry may not have received a copy of a proposal that we had submitted at a previous meeting . . .

The letter refers repeatedly to "this paper" or "our paper" or "the paper," implying that the standard which followed was Philibert's proposal. General never told the PTO and the PTO never learned that the standard was not the work of Philibert.

The district court found that concealment of the disclosure paper reflected "a lack of candor on Philibert's part, and that of defendant which actually moved the application," (A.39), but held that this document "by itself" would not necessarily have had a significant impact on the examiner's review of the application. (*Id.*) The draft standard, however, was another story. The district court ruled that identification of Allied's authorship would have been significant to the examiner in that it would have reflected the development of the product, would

have revealed the input of others, and would have prompted additional inquiry as to whether the idea was truly Philibert's. (*Id.*) Significantly, the court determined that "the incorporation of Auerbach's work was intentional," that Philibert "knowingly incorporated the work of another," (A.19), and that "[f]ailure to credit Auerbach was not mere negligence nor even gross negligence; it was probably intentional." (A.39-40.)

It was these findings that the Federal Circuit affirmed in its March 20, 1986 decision. (A.1-5.)

ARGUMENT

A. The Federal Circuit Has Decisively Answered The Sole Question Presented For Review.

The sole question presented for review is whether there should be a single, consistent standard to guide people in determining what information to submit to the PTO "during the procedure for obtaining a patent" in order to discharge the duty of candor. (Petition at i.) General fears that in the absence of such a standard, applicants will not know what kind of information they may withhold or misrepresent without ultimately rendering their patents unenforceable.

General's assertion that the Federal Circuit has "institutionalized chaos" in the patent system is baseless. (Petition at 6.) To the contrary, the consistent standard General yearns for already exists. Section 1.56(a) of the Code of Federal Regulations imposes on all patent applicants a duty

> to disclose to the Office information they are aware of which is material to the examination of the application. Such information is material where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent.

The Federal Circuit has declared unequivocally that Section 1.56(a) is the beacon by which patent applicants should guide themselves in dealing with the PTO. In *American Hoist & Derrick Company v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1363 (Fed. Cir.), *cert. denied*, ___U.S.___, 105 S. Ct. 95 (1984), [1] the court stated that in determining what information is material to the PTO, the Section 1.56(a) standard "most closely aligns with how one ought to conduct business with

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[1] Curiously, General omits in its Petition to note that Petitions for Writ of Certiorari were denied in every Federal Circuit case it cited in which the writ was sought. Allied assumes that these omissions were inadvertent.

the PTO." *See also Argus Chemical Corp. v. Fibre Glass-Evercoat Company*, 759 F.2d 10, 14 (Fed. Cir.), *cert. denied*, ___U.S.___, 106 S. Ct. 231 (1985); *J.P. Stevens & Co. v. Lex Tex Ltd.*, 747 F.2d 1553, 1559 (Fed. Cir. 1984), *cert. denied*, ___U.S.___, 106 S. Ct. 73 (1985).[2]

General's position is belied by the commentaries it cites as evidence of "conflict" in the patent system. Allen M. Sokal, a partner in a Washington, D.C. patent firm, acknowledged in his article, *Impact of Decisions of the Court of Appeals for the Federal Circuit on the Duty of Disclosure*, 66 J. PAT. OFF. SOC'Y 29, 30 (1984), that the "new court has spoken at greatest length on the subject of the standard for the duty of disclosure . . . ." *American Hoist,* he wrote, "made it clear that there are certain limits to which the duty of disclosure does not extend." *Id.* For example, there is no duty to disclose information which might persuade the examiner to allow the claims, no duty to disclose all pertinent information of which the applicant is aware, and no duty to conduct a search. Observing that Section 1.56(a) "prescribes how one ought to conduct business with the PTO," Sokal cautions that

> it is a mistake for an applicant or his attorney to be so shortsighted as to make the primary goal the issuance of a patent to the extent of being less candid than required by [1.56(a)] . . . Thus, it is invariably in the client's interest for him and his attorney to comply with the duty of disclosure . . . .

Id. at 32. Sokal further notes that "[o]ther decisions of the new court" besides *American Hoist* "have identified types of information that are or are not material, regardless of the standard that is applied." *Id.* If all this is not enough, Sokal

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[2] Allegretti, Newitt, Witcoff & McAndrews, Ltd., the firm with which General's counsel of record is associated, represented one of the parties in *J.P. Stevens*. The Federal Circuit ruled in favor of the firm's client, Burlington, on the issue of inequitable conduct. The reported decision does not suggest that Burlington's lawyers were confused or misled by Federal Circuit law on that issue.

states as well that "[t]he message from the CAFC to applicants and their attorneys is clearly to disclose any information that is material under the [1.56(a)] standard." *Id.* at 39.

Irving Kayton and David G. Conlin, other commentators relied upon by General, likewise have found stability in the law relating to the duty of disclosure. Although they suggested that a practitioner generally must employ a "black box" analysis to determine whether withholding or misrepresenting information will render a patent unenforceable, they found that with this " 'black box' analogy in mind, the practitioner has a reasonable framework within which he can make daily decisions within his 'black box' office." *Ethics, Inequitable Conduct and Fraud in Prosecution*, in *Patent Practice* (1985), at 25-9. Thus even the commentators identified in the Petition are unaware of the "chaos" which, according to General, reigns in the patent system.

Because the sole question General presents for review has been resolved by the Federal Circuit, the Petition should be denied.

B. General Confuses Rules Of Conduct Before The PTO With Evidentiary Standards Relating To Inequitable Conduct.

The only confusion with which the Court must grapple is that which General's Petition fabricates. General criticizes the Federal Circuit for not adopting a "single standard" to determine whether information is "material" to the PTO. (Petition at i.) The Federal Circuit, General asserts, has adopted "four different standards of materiality," (*Id.* at 11), creating uncertainty which "threatens" the patent system. (*Id.* at 6.) This argument fails to survive careful analysis. Its principal shortcoming is that the Federal Circuit never intended the four level materiality test to guide patent applicants in their conduct with the PTO. Rather, its intent is to articulate for patent litigators the threshold of proof required to establish inequitable conduct in the procurement process. When viewed in this light, it is clear that the test "will serve as a practical guide for prac-

titioners representing defendants in infringement actions who allege that the patent holder engaged in inequitable conduct in dealing with the PTO." Note, *A Practical Guide for Proving Fraud on the Patent and Trademark Office*: *J.P. Stevens & Co. v. Lex Tex Ltd.*, AM. U.L. REV. 729 (1985).[3]

The test for determining when a patent is unenforceable due to inequitable conduct is more flexible than the standard governing how one ought to conduct business with the PTO. This approach is not, as General would have the Court believe, the product of confusion or indecision in the Federal Circuit. Rather, it reflects a calculated desire not to be bound by a single standard of materiality when conducting an inquiry into an applicant's conduct. As the Federal Circuit stated in *American Hoist*:

> There is no reason, however, to be bound by any single standard, for the answer to any inquiry into fraud in the PTO does not begin and end with materiality, nor can materiality be said to be unconnected to other considerations. . .

725 F.2d at 1363. This simple statement lays bare the fundamental weakness of General's position. Because the factfinder in an inequitable conduct case is not concerned only with materiality, but "must also determine how convincing has been the proof of intent," *id.*, the standard for materiality lends itself to a sliding scale approach. Since questions of materiality and culpability "are often interrelated and intertwined," it is reasonable that "a lesser showing of the materiality of the withheld information may suffice when an intentional scheme to defraud is established, whereas a greater showing of the materiality of the withheld information would necessarily create an inference that its nondisclosure

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[3] General cited this article with approval in its Petition. (Petition at 15.)

was 'wrongful.' " *Id.* (Citation omitted.)[4] The sliding scale approach simply formalizes what common sense tells us: if an applicant intentionally withholds information from the PTO, one reasonably may infer that the withheld information is material. Conversely, if the withheld information clearly is material, one reasonably may infer that the applicant intentionally withheld it.

By identifying four levels of materiality, some more stringent than others, the Federal Circuit facilitates the balancing test it has adopted to govern inquiries into the conduct of an applicant after a patent has been challenged. The Federal Circuit never has held out its four level materiality approach as a guide to applicants "during the procedure for obtaining a patent." (Petition at i.) Indeed, to do so would serve no useful purpose because intent is not an issue at that stage of the proceedings.[5]

When the decisions of the Federal Circuit are examined against this backdrop, it is clear that the purported inconsistency which troubles General simply fails to exist.

C. Federal Circuit Law Does Not Conflict With Supreme Court Precedent.

General erroneously asserts that *Corona Cord Tire Company v. Dovan Chemical Corp.*, 276 U.S. 358 (1927), established a single materiality standard to be inflexibly applied in cases where inequitable conduct or fraud has been alleged. *Corona*, General suggests, held that "information is material only when it is 'indispensable to the granting

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[4] Balancing tests such as this one are not uncommon in the law. Such a test is especially appropriate here because of the difficulty encountered in finding direct evidence of intent.

[5] Obviously an applicant does not ask himself whether his conduct will be viewed as grossly negligent, reckless or intentional before deciding to withhold information from the PTO.

of the patent.' " (Petition at 17.) It is generally recognized, however, that *Corona* does not have the seminal status which General would like it to have. While the case is regarded as the "original authority that a fraud must be material to affect the validity or enforceability of a patent," Kayton, Lynch, Stern, *Fraud and Patent Procurement: Genuine and Sham Charges*, 43 GEO. WASH. L. REV. 1, 32 (Nov. 1974), General cannot cite a single decision in which *Corona*'s purported "indispensability" requirement has been adopted. General cannot do so because, since *Corona*, " . . . the courts have become more critical in their interpretation of the relationship existing between applicants for patent and the Patent Office and their scrutiny of the conduct of applicants in light of that relationship." *Norton v. Curtiss*, 433 F.2d 779, 793 (C.C.P.A. 1970). Significantly, General failed to cite *Corona* in either its pre-trial or post-trial submissions to the district court, in its briefs on appeal to the Federal Circuit or at any other time before filing the instant Petition. One would think that General would have cited *Corona* repeatedly if the case were as basic to patent law as General now asserts.

Even if *Corona* were binding precedent, it is not inconsistent with the position of the Federal Circuit. In *Corona*, the patentee's conduct was found to be "reckless" rather than intentional. 276 U.S. at 374. Accordingly, a high level of materiality was required before a finding of inequitable conduct could be made. It is unclear whether the Court would have required a lesser showing of materiality, as the Federal Circuit now does, had the patentee acted intentionally.

Because *Corona* is neither the last word on materiality nor in conflict with the Federal Circuit's position on that issue, General's exuberance over the decision is unjustified.

D. Both The District Court And The Federal Circuit Properly Found General Guilty Of Inequitable Conduct.

Allied must put to rest General's persistent and erroneous contention that the district court and the Federal Circuit thereafter found it "unlikely" that the withheld cover page would have affected the outcome of General's application. (Petition at 3, 23.) The basis of General's argument is the district court's statement that "it is unlikely that the examiner would have denied the patent on the ground that it was not Philibert's idea." This statement appears in Section F of the district court's Memorandum of Decision. (A.39.) The first of the two paragraphs in that section addresses Philibert's disclosure paper, which is not an issue before this Court. The second paragraph addresses the proposed UL standard. The statement cited by General appears in the first paragraph and, when read in context, applies only to Philibert's disclosure paper. Nowhere in Section F or anywhere else in the Memorandum of Decision does the district court suggest that it was "unlikely" that the examiner would have denied the patent had he seen the withheld portion of the UL standard. To the contrary, the district court held as follows:

> The draft standard for UL was part of the supplemental submission, but was identified as the work of Auerbach. It would have been significant to the examiner to have known the author of that material, particularly as other than Philibert, as such information would have reflected the development of the product and would have revealed the input of others. Further it would have prompted additional inquiry as to whether the idea was truly Philibert's as opposed to the combination of the deliberations of the ad hoc committee building on the Allied proposal.

(*Id.*) Thus General's assertion that conflict exists in the district court decision and the Federal Circuit decision which affirmed it is ill-founded.

E. This Case Is Not An "Ideal" Candidate For A Writ Of Certiorari.

As established above, there is no basis whatsoever for granting the writ. However, even if General's arguments had a glimmer of merit, this case is a poor candidate for Supreme Court review. The gist of General's claim is that the Federal Circuit has created confusion in the patent system, making it difficult for patent applicants to determine what information is and is not material to the PTO. Significantly, the Federal Circuit was not even in existence when General applied for its patent or when the patent was awarded. Clearly General cannot claim to have been a victim of the purported confusion.

General mischaracterizes the record when it suggests that this case is ideal for the writ because the district court found inequitable conduct on the basis of "possibilities." (Petition at 24.) As shown above, the district court found that "[i]t *would have been* significant to the examiner to have known the author of that material . . . " (A.39.) (Emphasis added.) This statement does not speak of mere possibilities. It declares definitively that had General satisfied its duty of candor, the impact on the PTO would have been "significant." The fact that the district court also noted that the withheld information "would have prompted additional inquiry" does not reflect any uncertainty. Rather, it is consistent with the prong of the Federal Circuit's balancing test which provides that withheld information can be material if it "might reasonably have affected the examiner's decision as to patentability." *American Hoist*, 725 F.2d at 1362. Because General acted intentionally, it was not inappropriate to find inequitable conduct on this basis as well.

CONCLUSION

The issue General presents for review has been resolved decisively by the Federal Circuit. The "confusion" which General claims imperils the patent system is a product of General's own inability or unwillingness to acknowledge the clear demarcation between the standard governing conduct in the PTO and the standard for determining when a patent is unenforceable due to inequitable conduct. For these reasons and the other reasons set forth above, respondent, Allied Tube & Conduit Corp., respectfully requests that the Court deny the Petition for Writ of Certiorari.

Respectfully submitted,

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APPENDIX

APPENDIX

Note: This opinion will not be published in a printed volume because it does not add significantly to the body of law and is not of widespread legal interest. It is a public record. It is not citable as precedent. The decision will appear in tables published periodically.

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

ALLIED TUBE AND CONDUIT CORP.,

Appellee/Cross-Appellant,

v.

GENERAL SIGNAL CORPORATION,

Appellant/Cross-Appellee.

Appeal Nos.
85-2324
85-2408

DECIDED: March 20, 1986 *

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* This appeal was originally decided in an opinion dated February 26, 1986. On March 10, 1986, Allied Tube & Conduit Corp. filed a "Motion to Clarify Decision." In light of that motion, our decision of February 26, 1986, has been recalled and is being reissued in its present form.

Before MARKEY, *Chief Judge*, BALDWIN and NIES, *Circuit Judges*.

NIES, *Circuit Judge*.

DECISION

General Signal Corporation appeals from the final judgment of the District Court for the District of Connecticut in Civil No. B-79-340, holding General's U.S. Patent No. 4,033,167, issued to Philibert, invalid, unenforceable and not infringed. The district court determined that the patent was: (1) invalid under 35 U.S.C. Sec. 112 for lack of an enabling disclosure; (2) invalid [presumably under Sec. 102(f)] because Philibert did not invent that which was claimed; (3) invalid [presumably under Sec. 102(a) or (b)] as anticipated by a prior art Mexican publication; (4) invalid for obviousness under Sec. 103; (5) unenforceable because of a breach of an applicant's duty of candor [inequitable conduct]; (6) unenforceable against Allied Tube because of Allied's irrevocable, non-exclusive, non-assignable, royalty-free license by implication arising out of Philibert's conduct; and (7) not infringed. We *affirm* the judgment on the ground that the patent is unenforceable as a result of inequitable conduct; *vacate* the district court's holding of invalidity; and *remand* for consideration of Allied's request for attorney fees under the proper legal standard.

DISCUSSION

In Philibert's response to the final rejection of all of his claims under 35 U.S.C. Sec. 103, he deemed it necessary to "furnish as complete a history as possible of the development of applicant's invention." Philibert then failed to include within the documents submitted to the Patent and Trademark Office, his February 4, 1974, proposal advocating the subsequently rejected 3/8 inch per foot taper. The submission did include a proposal for 3/4 inch per foot taper, which is claimed in the subject patent. That latter proposal, however, was written by Auerbach, an employee of Allied. The cover page, which identified the proposal as Auerbach's work and its date, was deleted from the copy sent to the PTO.

The district court found that the failure to credit Auerbach as the author was material, because it would have revealed the input of others and would have prompted additional inquiry as to whether the idea was truly Philibert's as opposed to the combination of the deliberations of the *ad hoc* committee. The district court further found that the "[f]ailure to credit Auerbach was not mere negligence nor even gross negligence; it was probably intentional."

We have fully considered the arguments made by General; however, it has failed to show that the findings on materiality and intent are clearly erroneous. Based upon these findings, in light of all of the circumstances of this case which need not be detailed here, the district court committed no error in holding the '167 unenforceable as a result of inequitable conduct in the PTO. *See J.P. Stevens & Co., Inc. v. Lex Tex Ltd., Inc.*, 747 F.2d

1553, 1559-60, 223 USPQ 1089, 1092 (Fed. Cir.), *cert. denied*, 106 S. Ct. 73 (1985).

General disputes the finding of materiality with the simplistic analysis that "the document is not prior art, *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698, 218 USPQ 865, 870 (Fed. Cir. 1983), *cert. denied*, 104 S. Ct. 709 (1984), and therefore, was not material to the allowance of the patent." That was true in *Environmental Designs*, where a third party's abandoned disclosure apparently had no relevance to any issue of patentability. It was admittedly not "prior art" under any subsection of sec. 102; therefore, its nondisclosure was not material. The present case is different, because the authorship of the document relates to a question of patentability of one or more claims under sec. 102(f). *Environmental Designs* does not support the broad rule suggested by General, that what is not "prior art," presumably under sec. 102(a) or (b), can never be material, and that case does not control the outcome here. Nor does General's statement that inventorship was not before the PTO negate the district court's finding of materiality. Although they are perhaps uncommon, sec. 102(f) rejections are within the province of the PTO, *see, e.g., Morgan v. Hirsch*, 728 F.2d 1449, 221 USPQ 193 (Fed. Cir. 1984); *In re Smith*, 714 F.2d 1127, 218 USPQ 976 (Fed. Cir. 1983); *A.F. Stoddard & Co., Ltd. v. Dann*, 564 F.2d 556, 195 USPQ 97 (D.C. Cir. 1977); *see also Sheffner v. Gallo*, 515 F.2d 1169, 1173-74, 185 USPQ 726, 729 (CCPA 1975) (Miller, concurring, explaining that the Board of Patent Interferences need not consider proof of derivation from a stranger to the interference, because the examiner can make a sec. 102(f) rejection in subsequent *ex parte* prosecution).

Contrary to General's statement in its reply brief, Allied's position is not, nor do we hold, that every applicant must disclose every document and its author that may relate to inventorship, in order to comply with 37 C.F.R. Sec. 1.56. General's fear merely illustrates the difficulty inherent in attempting to derive bright-line rules from a complicated fact situation. But, in any event, this case deals with acts of commission not simply acts of omission. Based on the facts of this case, including the representation and submissions to the PTO and the circumstances surrounding the *ad hoc* committee, the district court simply found that General's failure to credit Auerbach was material. Because General has failed to show that the court's findings were clearly erroneous, or that the court misapplied the relevant law, the judgment that the patent is unenforceable is affirmed.

With respect to Allied's cross-appeal, it does not appear that the district court, in declining to award attorney fees to Allied, followed the two-step analysis that has been adopted in this circuit. In light of our affirmance of the holding that inequitable conduct occurred, we vacate the denial of fees and remand for evaluation under the proper legal standard. *See Reactive Metals & Alloys Corp. v. ESM, Inc.*, 769 F.2d 1578, 226 USPQ 821 (Fed. Cir. 1985); *Bayer Aktiengesellschaft v. Duphar International Research*, 738 F.2d 1237, 222 USPQ 649 (Fed. Cir. 1984).

Our affirmance on the above ground makes it unnecessary to render a decision on the other issues of the appeal. However, because we do not endorse the analysis of those issues in the district court memorandum of decision, we vacate the portion of the judgment holding the patent invalid.

UNITED STATES DISTRICT COURT
DISTRICT OF CONNECTICUT

ALLIED TUBE AND CONDUIT CORP.

-vs- Civil No. B-79-340 (PCD)

GENERAL SIGNAL CORP.

MEMORANDUM OF DECISION

Plaintiff, Allied Tube & Conduit Corp. (Allied), seeks a declaration that Patent No. 4,033,167 (patent) is invalid, or that if valid (1) it is not being infringed by plaintiff; (2) defendant, General Signal Corp. (General), the assignee of the patent, has impliedly licensed Allied's use; or (3) General is estopped from enforcing the patent against Allied. Allied wishes to produce intermediate weight electrical conduit (IMC) without harassment by General. Jurisdiction is properly founded on 28 U.S.C. Sections 2201 and 2202, *Walker Process Equip., Inc. v. Food Machinery & Chemical Corp.*, 382 U.S. 172 (1965), including Allied's prayer for injunctive relief. *Vermont Structural Slate Co. v. Tatko Bros. Slate Co.*, 253 F.2d 29 (2d Cir. 1958), citing *Kessler v. Eldred*, 206 U.S. 285 (1907). The action also lies under 28 U.S.C. Secs. 1131, 1332 and 1338(a).

General asserts the validity of the patent and has counterclaimed asserting infringement for which damages are prayed.

For the reasons set forth below, judgment shall enter for plaintiff.

Findings of Fact

1. Allied is a Delaware corporation with its principal place of business in Illinois.

2. Allied is in the business of manufacturing and selling tubular steel products including electrical conduit.

3. General is a New York corporation and has a place of business in Stamford, Connecticut. A subsidiary of General, OZ/Gedney, located in Terryville, Connecticut, manufactures fittings used with conduit to create a race-way system in which electric wires are supported, insulated and protected.

4. A building's electrical distribution system is formed by installing conduit then pulling wires or cables through the conduit.

5. Prior to 1974, two kinds of conduit were available in the marketplace: rigid steel conduit (rigid) and electrical metallic tubing (EMT). Rigid was much heavier than EMT and thus provided greater protection for the encased wires, including insulation from gases and fluids, since sections of conduit were joined to one another, or to fixtures, at threaded joints. As a safety factor, certain installations require that conduit be joined by threaded joints. EMT was thin-walled and as a result its joints could not be threaded, but rather were joined by clamping action. EMT could be joined to rigid by adapters.

6. Intermediate weight conduit (IMC) was proposed as an alternative to rigid, providing the

advantage of wall strength and the integrity of threaded joints. IMC could be threadless. IMC's substantial reduction in wall thickness as compared to rigid resulted in considerable cost savings.

7. The National Fire Protection Association (NFPA) and the American National Standards Institute (ANSI) are concerned with product standards in the United States, with an emphasis on safety.

8. The National Electrical Code (NEC) describes particular products related to the use and distribution of electricity. Its purpose is the protection of persons and properties from harm caused by products used with electricity.

9. As it is promulgated by private organizations, the NEC has no official status. However, due to the breadth of the input in drafting its provisions, and its wide-spread adoption and/or endorsement by numerous levels and agencies of government, it enjoys substantial authority and acceptance.

10. The NEC pertains to electrical conductors and equipment used in the distribution of electricity.

11. The NEC does not provide product design specifications.

12. A new product, not covered in the NEC, faces a substantial obstacle in penetrating the market.

13. Amendments to the NEC or new NEC articles may be proposed by interested persons.

14. Proposals are subjected to a review process which can lead to incorporation into the NEC, which is revised every three years. A proposal is initially reviewed by a code-making panel (CMP) whose members represent a broad spectrum of the businesses or industries most closely related to the production and use of the product covered by the proposal. The CMP reports to the Electrical Correlating Committee which publishes any proposals, in the form received from the CMP, for comment by the NFPA membership and other interested parties.

15. After a period for comments, the proposal is reviewed again by the CMP in relation to the comments and returned to the correlating committee with a recommendation. The correlating committee then makes its determination as to the proposal, which, if approved, is submitted at the NFPA meeting next prior to the publication of the new NEC.

16. In or about 1970, Allied determined to produce IMC, to serve the same purposes as rigid, but at substantially less cost. In part, Allied was motivated by the fact that in times of steel shortage a supply of steel for rigid was not guaranteed but was vulnerable to the steel industry's varying price and supply determinations.

17. In February of 1972, Allied decided to propose an article recognizing IMC in the 1975 NEC.

18. Allied initially proposed an unthreaded IMC.

19. The thinner walls of IMC presented a problem for threading necessary for the threaded joints.

20. In order to substantiate its proposal, Allied requested a fact-finding investigation by Underwriter's Laboratories (UL). Such an investigation is generally necessary for NEC recognition of a new product.

21. UL is an independent agency which conducts investigations in relation to proposed products in the distribution and/or use of electricity. It also promulgates standards for specific products and lists those products which comply therewith.

22. UL listing is advantageous, if not essential, for acceptance in the marketplace.

23. In reporting on a fact-finding investigation, UL draws no conclusions and makes no recommendations but merely reports the test data on the product's performance when used as intended.

24. Allied's original concept - with the approval, if not the instigation of UL as a safety matter - was that IMC would not be made compatible with rigid. Allied hoped to produce a cost-advantageous product which would substantially, if not totally, replace rigid.

25. Allied's initial submission to UL was threadless IMC. In July of 1972, UL's test format was established and testing was commenced on samples furnished by Allied.

26. In November of 1972, Allied advised UL of its intention to request testing on threaded IMC.

27. On November 27, 1972, UL's report on the unthreaded IMC was issued.

28. In early 1973, Allied supplied threaded IMC to UL for testing.

29. On October 4, 1973, UL issued its report on the threaded IMC and on November 9, 1973, reported on its tests of threading in the field (i.e. at the point of installation).

30. Allied's proposal included ten trade sizes, starting with 1/2", increased by steps of 1/4" through 1-1/2" and then increased by 1/2" steps to 4" inches. The dimensions were thus comparable to the trade sizes of rigid. As Allied contemplated IMC would replace rigid, the proposal did not accommodate ready-joining of IMC to rigid.

31. Allied's proposed IMC thread had the same count as the standard thread, National Pipe Thread (NPT), used on rigid, but had a different taper, 3/8" per foot, which would not readily thread with rigid conduit or its fittings.

32. From fittings manufacturers, Allied had ascertained that fittings would be available to accommodate the proposed thread. Adapters could be used where necessary to join IMC and rigid.

33. As proposed, IMC would be distinguished from rigid by a color-coding scheme.

34. Allied's proposal was referred to NFPA's CMP #8, which approved the proposal for threadless IMC in January of 1973 and, in December 1973, approved the threaded IMC proposal.

35. In February 1974, the correlating committee of the electrical section of NFPA approved Allied's proposal for the NEC. Final approval was to be considered by the NFPA membership in May, 1974.

36. In mid-January 1974, several manufacturers of conduit fittings expressed concern with Allied's proposed threaded IMC, partially on the basis of safety. They were also concerned that an incompatible IMC thread would require the fittings industry to produce and maintain two inventories of fittings, one with the proposed IMC thread and the other with a thread for use with rigid.

37. This concern was pressed to Mr. William Fahrquar of UL in January 1974. Mr. Robert Philibert the chief engineer of OZ/Gedney, a subsidiary of General, was instrumental in bringing this concern to the attention of UL.

38. Use of rigid conduit involved threading in the field using devices which created the NPT thread. Rigid thread had a taper of 3/4" per foot. If such devices were used on IMC, substantial safety concerns would arise, for it was likely that the cutting edges of the threading device would break through the interior walls of the IMC.

39. Although one section of the UL staff was satisfied with incompatibility between IMC and

rigid, safety concerns resulting from incompatibility prompted Fahrquar to initiate an assessment of the safety factors involved.

40. Fahrquar formed an ad hoc committee to consider Allied's proposal, including incompatibility, from a safety point of view. The ad hoc committee represented many segments of industry involved with conduit, including fittings manufacturers, conduit manufacturers, and steel companies.

41. The committee met first on February 7, 1974. Initially it debated the incompatible factors of Allied's proposal.

42. When compatibility was agreed to, the ad hoc committee's deliberations focused on the development of a configuration of IMC that would be compatible with rigid fittings.

43. One alternative to Allied's proposal was "swaging," a process by which the outside diameter of IMC was reduced by pressure. Field processing was necessary as pieces of conduit were cut to fit particular locations. The swaging proposal was found unacceptable.

44. In January 1974, Philibert, who had reviewed Allied's drawings for the dimensions and threading to be used on IMC as designed by Mr. Kenneth Cole, of Picoma Industries, a threading expert, and who knew that UL was convening the ad hoc committee, commenced developing a thread and configuration for IMC.

45. Under date of February 4, 1974, Exhibit

43, Philibert memorialized his proposal and submitted a copy to General's patent counsel.

46. One alternative considered by the ad hoc committee was Philibert's proposal which proposed an outside diameter reduced to a dimension commensurate with the lowest end of the range of tolerance for rigid's diameter, retaining the 3/8" inch tapered thread.

47. To produce a standard product, nominal measurements are specified with limited deviations from that standard stated as tolerances. Thus, the nominal outside diameter of one-half inch rigid conduit is .840" with tolerances to .856" on the high side and .809" on the low side.

48. The ad hoc committee deliberated through February and March without agreement substantially because Allied declined to agree that IMC must be compatible with rigid fittings. Allied's position was that to change its proposal for the new IMC article in the NEC would jeopardize the approvals it had already obtained and it would therefore have to start anew with the submission of a new proposal. Such a process would not possibly obtain approval in May 1974 when NFPA next met and thus Allied would lose its opportunity for inclusion in the 1975 code, which would mean that the earliest a revised IMC could be approved for incorporation in the NEC would be in 1978.

49. In April 1974, Allied's president, Mr. Theodore Krengel, agreed to threading IMC to be compatible with rigid fittings. Prominent among his reasons was the undertaking of UL and the fittings industry's representatives to support the

Allied IMC proposal, as revised, at the May 1974 NFPA convention.

50. Allied's agreement broke the log-jam and resulted in the ad hoc committee's agreement on a threading configuration of IMC featuring a 3/4" taper, an outside diameter at the low end of the tolerance range of rigid conduit with a five-thousandths tolerance either side of the nominal outside diameter, and a wall thickness calculated to accommodate the threading.

51. Upon that resolution, Philibert and Cole consulted to draft final specifications for the various trade sizes of IMC which the ad hoc committee approved.

52. The discussions of revised specifications for IMC, which involved contributions and comments by substantially all of the ad hoc participants, was pointed toward the development of a compatible thread configuration whereby the same fittings could be used with both types of conduit.

53. Compatibility between IMC and rigid eliminated the necessity and expense of developing, manufacturing and stocking separate fittings for IMC and for rigid.

54. Philibert participated in the ad hoc committee meetings as a representative of General with full knowledge that the committee was to develop thread specifications and a configuration as an alternative to Allied's proposal.

55. Allied's proposed threading with a 3/8" taper was not disputed as a safe and workable

thread permitting conduit to be manufactured with a minimum wall thickness. The concern of the ad hoc committee was safety when, in the field, two different sizes of the conduit, each with its own threading and fittings, could be used. Inadequate understanding by installers and lack of the proper tools to work with each size conduit could result in field threading and fitting use which could produce unsafe joints and break-through of the threading to the interior of the IMC.

56. The committee's deliberations were believed by the participants and UL to have resulted in an IMC with thread dimensions and a configuration that were fully compatible with rigid and that would lead to development of a UL standard for IMC that would incorporate the specifications agreed upon. The taper configuration was changed from 3/8" per foot to 3/4" per foot to comport with the NPT threading of rigid. This necessitated an increase in the wall thickness of several of the trade sizes of IMC to accommodate the threading and avoid breakthrough of the interior wall of the IMC.

57. On April 26, 1974, Allied submitted to UL a written proposal for an IMC standard drafted by Bernard Auerbach, an employee of Allied.

58. Fittings manufacturers' representatives, including Philibert, supported Allied's proposed NEC article 345 as modified to conform to the ad hoc committee agreement.

59. NFPA approved Allied's proposal, amended to delete the reference to a 3/8" taper.

60. UL issued a proposed IMC standard on October 23, 1974, substantially in conformance with the determinations of the ad hoc committee and as proposed by Mr. Auerbach.

61. While Philibert's February 4, 1974, proposal was intended to produce compatibility, it retained a 3/8" per foot taper. Rigid was required to have a 3/4" per foot taper. IMC was noted by Philibert to be unable to "have a taper of three quarters inch per foot . . . since [IMC] has insufficient wall thickness to allow for this angle of taper."

62. Philibert's proposal was designed to produce compatibility between IMC and rigid and thus was not an alternative to the Allied proposal, which was premised on an incompatibility between IMC and rigid.

63. Philibert calculated dimensions to accommodate threading within the available metal provided by the wall thicknesses specified. The dimensions derived are specifically noted to be "the subject of future discussion." Exhibit 43.

64. Philibert's proposal was discussed as part of the deliberations of the ad hoc committee, the object of which was "to discuss all aspects of [IMC] as they relate to the production of techniques and practices so that proposed requirements which UL develops will represent the highest degree of compatibility possible." Exhibit 34.

65. As of the February 21, 1974, meeting of the ad hoc committee, neither swaging nor Philibert's proposals were adequately refined for

assessment as solutions of the various problems presented. At that point "it was recognized that a great deal of study would be required to consider all the problems relating to these proposals before further consideration could be given to them." (Exhibit 34) and obviously before a final judgment could be made. The further study by the committee was pointed toward "further development of the threads," (*id.*) in which all members of the committee, including Philibert, participated.

66. While the ad hoc committee incorporated Philibert's proposed outside diameter at the low end of the range of tolerance for rigid conduit with close tolerances established in relation thereto, "significant effort and time was spent developing thread dimensions and gauging" with "adjustments in wall thickness of the tube, . . . necessary in some cases," evolving from the discussion. Exhibit 36.

67. Plaintiff's production of IMC has been marked by experimentation and adjustment in order to avoid thread breakthrough. IMC's wall is kept to a minimum thickness. It thereby provides a limited thickness into which the threading dies may cut to produce a thread without their cutting through the interior wall. Tapering the thread results in a deeper cutting into the wall at the distal end of the thread. Plaintiff has altered the wall thickness (to range between 66% and 72% of rigid wall thickness), threaded short (i.e. omitted one or more of the distal end threads) experimented with thread truncation, and increased the pitch diameter, all in deviation from the patent specification. Strict adherence to the patent specifications was found not to result uniformly in a saleable product.

68. Philibert's patent application was filed on August 21, 1974.

69. The patent application was formally rejected twice by the patent examiner as obvious.

70. On March 5, 1976, a continuation application was filed and was assigned to a different examiner. The continuing application was also rejected on July 14, 1976.

71. After a conference between representatives of General, Philibert, Mr. Ohlant, the patent attorney representing General, and the patent examiner, as a result of which a full background documentation was purportedly filed, the patent office, on July 5, 1977, issued Patent No. 4,033,167. The disclosure incorporated, as data for the product, a draft of a proposed standard for UL written by Mr. Auerbach, an employee of plaintiff. The incorporation of Auerbach's work was intentional, on behalf of the patent applicant, as reflected in the pagination, and knowingly incorporated the work of another since the first two pages of Auerbach's submission to UL, which clearly identified the work as not Philibert's, were omitted from the submission to the examiner. Thus, the application was supported, to all outward appearances, by the work of Auerbach without identifying its author.

72. The inventor named in the patent was Philibert.

73. On August 8, 1974, Philibert assigned his entire right, title and interest to the invention to General.

74. The patent is a combination of steps by which IMC is formed with a wall thickness of approximately 60% of that of rigid conduit, a 3/4" per foot tapered NPT thread, an outside diameter approximating the lower range of rigid conduit, a plus or minus five-thousandths of an inch (.005") tolerance for the smaller trade sizes and a plus or minus ten-thousandths of an inch (.010") tolerance for the larger trade sizes.

75. Allied commenced manufacturing IMC in the latter part of 1974 and has continued to do so to date.

76. Allied's IMC is found to have a wall thickness which ranges between 66% and 72% of the wall thickness of the corresponding trade sizes of rigid, resulting from Allied's adjusting dimensions in order to accommodate the specified thread in the UL standard and a 3/4" per foot taper.

77. On May 5, 1978, General offered Allied a license under the patent to manufacture IMC.

78. General's stated position is that all IMC manufactured under the UL standard infringes Patent No. 4,033,167 and thus requires a license for which General would demand a royalty.

79. Allied contends that its profit, calculated after taxes, on IMC manufactured between February 1975 and August 1984 totals $1,183,000. This included adjustments for a change of accounting. *See* Exhibits 120, 120A. Allied contends that it lost considerable sums selling IMC through 1978.

80. General has not enforced its contention that other IMC manufacturers are subject to license and royalty requirements under the patent pending the resolution of this lawsuit.

81. One skilled in the art of conduit design and manufacture would have the academic background and the experience claimed by defendant, but the record does not suggest that practical experience materially increased the qualifications for one skilled in the art.

Discussion

Preliminarily, the court must rule on the admissibility of defendant's proffered Exhibit 13, allegedly plaintiff's disclosure responses filed in other litigation and constituting admissions. Plaintiff does not question authenticity nor the authority of the filing attorney to speak on its behalf at least in the other litigation. As a judicial statement over the signature of one authorized by plaintiff to speak on its behalf, plaintiff is bound by the filing, *United States v. McKenna*, 738 F.2d 26, 30 (2d Cir. 1984), and it will thus be admitted, It is not hearsay. As the context does not clearly disclose its import nor intent, the weight of the evidence is subject to question; that does not, however, bar its admissibility.

Plaintiff claims that the patent is invalid for several reasons, that defendant should be estopped from enforcing the patent against it if valid, that it is not infringing the patent, and that it is entitled to attorney's fees and disbursements. Defendant counterclaims, asserting the patent's

validity, seeks damages for infringement in the form of a royalty. The patent is presumed to be valid. 35 U.S.C. Sec. 282. Plaintiff, therefore, has the burden of proving invalidity on at least one ground asserted, both to substantiate its claim and defend against the counterclaim.

I. Validity

Plaintiff's claims of invalidity will be examined seriatim.

A. Disclosure

A patent applicant must submit a clear, concise written description of the invention and of the manner in which it is to be made and used such that one skilled in the art is able to make and use it. 35 U.S.C. Sec. 112. There was no evidence that production in strict compliance with the specific embodiment of the patent's claims was infallibly feasible. Allied's evidence of its experimentation questions whether its changes from the teachings of the patent were within the range of the patent's claims. If the patent claims leave one skilled in the art with the necessity of undue experimentation in order to practice the invention, *see W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1557 (Fed. Cir. 1983), *cert. denied*, 105 S.Ct. 172 (1984); *White Consolidated Indust., Inc. v. Vega Servo Control, Inc.*, 713 F.2d 788, 791 (Fed. Cir. 1983), then the patent is invalid and there is no infringement. *Georgia Pacific Corp. v. United States Plywood Corp.*, 258 F.2d 124, 136 (2d Cir.), *cert. denied*, 358 U.S. 884 (1958). That the Patent Office found sufficient particularity in issuing the patent supports the presumption of validity, *Ortho Pharmaceutical Corp. v. American*

Hospital Supply Corp., 534 F.2d 89 (7th Cir. 1976), but is not controlling. The test is a reasonable degree of experimentation. *White Consolidated*, 713 F.2d at 791; *In re Brandtstadter*, 484 F.2d 1395, 1404 (C.C.P.A. 1973). An inventor may not rely on the knowledge of those skilled in the art to embellish his claimed invention without limitation, for in such case he would have merely patented an idea that required further input and inventiveness to produce a usable, functionable product. If what is undisclosed, and is required to make and use the patent, is known to the art, then the patent is not invalid for want of enablement. *Lindemann Maschinenfabrik v. American Hoist & Derrick*, 730 F.2d 1452, 1463 (Fed. Cir. 1984). An inventor may patent his own ideas, but he may not embrace the ideas of others necessary to make and put into practical use the ideas he claims to have patented. The disclosure in a patent must be judged as of the application, not on subsequently available information.

The patent's preferred embodiments were the same as the figures derived from deliberations of the ad hoc committee in April of 1974. However, the UL standards (Exhibit 48) varied from the patent, *see* Exhibit 53, as a result of increased wall thickness and the tolerances allowed for wall thickness. When Allied commenced manufacture of IMC in 1974, using NPT chasers (tools used to cut threads) to thread the IMC as per the UL standards, it found, by experiment, it was necessary to increase the wall size of .005" in a number of sizes. This was accomplished by changing the inside diameter (ID). With increased wall size, the cost of materials increased. Also, to avoid breakthrough, Allied experimented with "threading short," that is cutting one or two less

threads than were called for and thus not cutting as deep at the end of the IMC where the thread pitch diameter and root diameter (Ko) were the smallest. *See* Exhibit 107. Also thread truncation (cutting off or reducing the thread crest or height) was tried and pitch diameter (which controlled the depth to which the entire thread was cut into the wall) was altered. In 1979, Allied was making IMC at variance with the patent in a number of specifications. *Compare* Exhibit 33 *with* Exhibit 1. In 1980 to 1982, Allied's product varied from the dimensions specified in the patent. *Compare* Exhibits 3 and 81 *with* Exhibit 1. Thus, instead of a wall thickness 60% that of rigid conduit, Allied's product ranged from 66% to 72% of the thickness of rigid conduit. In addition, in 1982, the proposed UL permanent standards for IMC increased the wall thickness of 2-1/2" IMC by .010" to put added metal under the thread, that is between the deepest thread root and the inside wall of the IMC, suggesting the inadequacy of the earlier specifications, including those set forth in the patent.

Allied argues that the comparisons discussed above, without exploring the same in minute detail, clearly indicate that the patent does not represent disclosure of a patentable idea. The evidence disclosed the necessity of substantial experimentation with the dimensions of IMC from the start of production in 1974. That experimentation is claimed to have been necessary to produce a workable product, i.e. one that used less metal in thinner walls but at the same time accommodated an adequate thread without cutting too deeply into the IMC wall, a problem the patent was claimed to have solved. Put another way, plaintiff claims that the patent is invalid as not,

by its terms, providing a solution to the problem it purports to have solved.

A patent must be described in "full, clear concise and exact terms as to enable any person skilled in the art to make and use it without undue experimentation." 35 U.S.C. Sec. 112. The crucial test is found in the words "undue experimentation." The patent must teach one skilled in the art to practice the invention, *W.L. Gore*, 721 F.2d at 1540, that is, to use it as the means for solving a problem. The Philibert patent was to provide an IMC configuration with a thread compatible with rigid conduit such that the thread, when cut into the wall of the IMC, did not break through the inside of the IMC wall. The only apparent manufacture of IMC, albeit by plaintiff, could not simply use the dimensions and configurations of the preferred embodiment nor the claims of the patent and thereby produce a usable product. Allied's variations in the wall thickness, as evidenced in the UL standards, along with threading short, thread truncation and reduced pitch diameter all designed to cut less deeply into the wall, suggest that the patent did not solve the problem as claimed. A problem solution purportedly resulting from the combination of several dimensions which resulted in no novel configuration but a particular reduced OD wall thickness and thread configuration, the patent should be held to the combination Philibert claimed. To fail to limit the latitude of the patent would permit its monopoly to be extended to other combinations of dimensions without justification. The evidence shows a sufficient number of changes in the dimensions to suggest that Philibert did not provide the full, clear, concise and exact terms so as to preclude the necessity of additional

experimentation. What Allied was obliged to do is found to constitute undue experimentation.

Plaintiff's claim under 35 U.S.C. Sec. 112 must be sustained.

B. Particularity

The patent refers to a wall approximately 60% as thick as the wall of rigid conduit, a small tolerance from the nominal OD and an OD which approximates the low end of the range of tolerance for rigid OD. (Philibert's minimum OD ranges from .001" to .006" above the minimum rigid OD.) The patent does not define the reference point, i.e. the dimensions of rigid conduit. If the American Society for Testing Material (ASTM) standard for rigid conduit is used, one set of numbers would apply and a different set is established by ANSI, e.g. an OD range of .809" to .856" for 1/2" conduit per ASTM as opposed to .825" to .855" for ANSI. The patent also refers to the NEC. At application, the NEC (1972) made no mention of IMC. At the patent issuance, the NEC (1975) incorporated the amended Allied proposal. These vaguenesses are somewhat clarified by other provisions of the patent and, though not without difficulty, a practitioner could practice the patent notwithstanding the want of precision in these respects. Therefore, although not trivial, the lack of particularity raised by plaintiff is insufficient to invalidate the patent. The wording used is adequate to withstand a challenge, under 35 U.S.C. Sec. 112, for vagueness, lack of clarity and particularity.

C. Inventorship

To sustain his patent, Philibert had to be the inventor. A granted patent is presumed to be valid and plaintiff has the burden of proving to the contrary. Consideration of who was the inventor requires comment on the process by which the patent came to be issued. Allied determined to make a conduit of less weight than the then standard rigid conduit. This called for a readily obvious method, reduction of wall thickness. In aiming at a fifty percent (50%) reduction in wall thickness, Allied sought to: develop a more economical product; reduce production costs; and lessen its dependence on the steel industry to supply the shells from which rigid conduit was made.

Allied's originally conceived IMC, for market and safety reasons, as not compatible with rigid conduit. Adaptors would be made to permit interconnection where necessary.

If the new product was to be successful, it was essential for Allied to secure trade approval. Efforts to achieve that purpose by an article in a 1975 NEC proceeded apace in 1972 and 1973, with a marked degree of success both for threaded and unthreaded IMC. In January 1974, the safety of Allied's proposal was questioned. If the product was not interchangeable, connections made in the field or the use of the improper threading devices on IMC were deemed potentially unsafe. The availability of two sets of tools to thread rigid as opposed to IMC was questioned. Manufacturers of fittings, including a subdivision of defendant, which employed Mr. Philibert, sparked the questioning, at least substantially motivated by

their wish to avoid the trouble and expense of manufacturing, stocking and selling fittings for two thread sizes. Mr. Philibert was in the forefront of the opposition. He had full knowledge, since 1973, of Allied's proposal, including drawings of its product. Allied had attempted to alert fittings manufacturers such as OZ/Gedney, Philibert's employer, to a potential need for new fittings.

Thus instigated, UL created an ad hoc committee in February 1974 to study the question. By February 4, 1974, Philibert claims to have formulated a solution to the problem of compatibility (obviously in anticipation of the success of the objection to Allied's incompatible IMC). Under date of February 4, 1973, Exhibit 43, he set forth his formulation. (Two of the drawings incorporated in Exhibit 43 are dated subsequent to February 4, 1974.) The threading proposed by Philibert had a taper of 3/8" to the foot, as did the Allied proposal, and not the NPT standard 3/4" taper thread used on rigid. Before he circulated his paper to the ad hoc committee, Philibert dispatched a copy to defendant's in-house patent attorney.

Initially, the ad hoc committee debated whether compatibility was necessary. Until compatibility was required, a compatible thread on IMC was not a problem. Thus Philibert formulated a solution to a problem he was about to create. The preliminary approvals of Allied's proposals for IMC prompted it to be extremely reluctant to alter its proposal drastically lest it then have to start seeking approval all over again with an altered IMC which would be unlikely to be approved in time for the 1975 NEC, resulting in a delay until the 1978 NEC and in the manufacturing of IMC for

three years. In April 1974, when plaintiff's president, Krengel, was convinced that he would obtain the support of the fittings manufacturers and UL in obtaining approval for an altered IMC to be incorporated into the 1975 NEC, plaintiff agreed to alter its proposal to include threading that was interconnectible with rigid conduit fittings. At that time, the ad hoc committee turned in earnest to developing a configuration of IMC including wall thickness, OD, and ID and threading dimensions that not only provided compatibility, but were feasible. A sufficient wall thickness had to be matched with the cutting depth of the threading specifications to leave enough wall metal under the threads, that is, between the root of the threads and the inner wall of the IMC, to avoid break through of the inner wall. In order to reduce the wall thickness from that of rigid and allow a compatible thread to be cut in the wall of IMC, various combinations of dimensions were possible. Substantially all of the ad hoc committee participated in the calculations. Philibert's February 4, 1974, proposal was one starting point for the deliberations, but it is also clear that the final product differed substantially from his original proposal. The measure of the difference can most particularly be demonstrated in a comparison of the dimensions in Exhibits B and C attached to Exhibit 43, the February 4, 1974, proposal of Philibert, with the dimensions in Table II of the patent, Exhibit 1. The fact that changes were made shows that as of February 4, 1974, Philibert had not solved the problem of a feasible, compatible thread on the wall of IMC, although he claims to have done so, and confirms the input from a number of sources within the ad hoc committee to the final dimensions. The proposal of February 4, 1974, was premised on a 3/8" per

foot thread taper whereas the final thread used the NPT standard, 3/4" per foot taper, as on rigid conduit. The patent specifies 3/4" in the preferred embodiment, but the claims are open as to the actual taper used including a straight thread.

The evidence does not establish Philibert as the author. Philibert conceded the contribution of others, including particularly Cole who drafted the original thread in the Allied proposal. The adjustments made in his original proposal were in the wall diameters, the thread configurations, the taper, pitch diameter and thread truncation. While Philibert claims, in the patent, a wall thickness equal to 60% of the thickness of rigid conduit wall, a reduction in that range was required to give any purpose to IMC that is to constitute a lighter weight, less costly alternative conduit. When Krengel agreed to a compatible IMC, Allied's proposal required further reduction of the OD and a 3/4" tapered thread. Philibert's wall thickness was increased in and after the April 1974 meeting and truncation was considered. Of particular significance was the joint work done with Cole to present a final set of dimensions. Plaintiff characterized Cole as a collaborator, one who confirmed his, Philibert's calculations. Cole testified to a considerable substantive input on his part to the final dimensions approved by the ad hoc committee and which corresponded to the patent application. The court credits Cole's version of the contribution.

In short, Philibert's proposal of February 4, 1974, was not a solution and did not constitute the idea as patented although some of the conceptions, particularly the use of an OD at the low end of the tolerance range for rigid OD were used. Even

the ad hoc committee's final figures were changed in the standards adopted by UL in October 1974 and were changed further by Allied in practice after October 1974, when it commenced manufacturing. Thus, what Philibert patented, not only in its claims, but particularly as specified in the preferred embodiment, he did not invent. As will be discussed in relation to the claim of obviousness, he took several well known or obvious principles of mechanical engineering and mathematics and applied calculations starting with Allied's concept in order to give IMC a dimension or configuration after compatibility was agreed upon and the 3/8" taper was abandoned for a 3/4" taper, substantial contributions to which were made by the ad hoc committee including the UL staff and Cole. Thus, the patented idea was developed by the group, including substantial, but not substantially exclusive, contributions by Philibert.

D. Anticipation

The Mexican diaries, Exhibits 23 through 29, constituting a single publication and prior art, disclose in a general way a very basic principle. If one reduces the OD of IMC (denominated semi-heavy conduit in Mexico), compatibility with rigid (or heavy) conduit fittings can be achieved. Philibert claims in his patent the idea that a very limited range of dimensions is a solution to the compatibility problem.[2]

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2. The claim made by defendant is enlightening to the discussion of obviousness and infringement. If the uniqueness of the patent is the limitations of its dimensions, as defendant asserts to escape the embrace of anticipation by

The Mexican art discloses a narrow range of tolerance for the OD. Nothing in the record discloses how that range was decided upon. In the small sized IMC, the Mexican range is the same as the patent, .010". In the larger sizes, the Mexican tolerance range increases to .012", .016", and .020", consistent with Claim 7C of the patent, Exhibit 1. The Mexican IMC is, in practice, compatible with the heavy or rigid conduit as was the purpose of the patent. *See* Exhibits 20A through 20I. The nominal OD of the Mexican conduit is not consistently nor precisely correlated to the low end of the range of tolerance for rigid or heavy conduit, in contrast to the patent. In the smaller sizes, but for the 1/2" size, the Mexican maximum OD is lower than the patent minimum by from .019" to .043". In the larger sizes, the Mexican minimum OD exceeds the patent maximum OD by .002", .006" and .014". In only the 1/2" conduit size do the OD tolerances overlap. The dimensions of the Mexican wall thickness are all lower than the patent by from .006" to .016" except in the 4" size, where the Mexican conduit is .015" larger.

The Mexican art thus describes an IMC with a wall thickness which ranges from 50% to 60% of the thickness of rigid wall with an average of 56%. The preferred embodiment of Philibert's patent prescribed wall thicknesses from 53% to 63% of rigid, an average of 59.9%. The patent claims

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the Mexican diaries, then defendant must be held to the same standard, that is the very specific dimensions, in analyzing the patent for all purposes.

describe the wall thickness as approximately 60%. The Mexican wall thicknesses range further but clearly embraces the 60% figure as does the patent. If the Mexican dimensions do not qualify as prior art by reason of the discrepancy, as defendant argues, that determination would be significant with respect to the question of infringement as plaintiff's wall thicknesses range from 66% to 72% of that of rigid.

The Berger product is insufficiently presented to permit in the full range of conduit sizes, a finding of anticipation.

The Mexican semi-heavy conduit has the following features:

(a) A wall thickness ranging from 50% to 66% of that of rigid, with an average of 56%.

(b) An OD which is related to the lowest tolerance of rigid OD as follows:

Conduit Size	Lower Limit Rigid OD	A Difference Between Mexican OD Lower Limit and Rigid Lower Limit Actual Dimension	Percentage
1/2"	.809"	-.008"	- .99%
3/4"	1.019"	-.024"	-2.3 %
1"	1.284"	-.39"	-3.0 %
1-1/4"	1.629"	-.040"	-2.5 %
1-1/2"	1.869"	-.047"	-2.5 %
2"	2.351"	-.038"	-1.6 %
2-1/2"	2.846"	+.023"	+ .81%
3"	3.465"	+.021"	+ .61%
4"	4.455"	+.045"	+1.0 %

Average	-.017"	-1.1 %

(c) An OD tolerance of + or -.005" from 1/2" to 2" size conduit, + or -.006" for 2-1/2" conduit, + or -.008" for 3" conduit and + or -.010" for 4" conduit.

(d) A standard end PT thread (3/4" taper) or straight thread as determined by the customer.

(e) Compatibility with heavy (rigid) conduit.

Comparison of these features with the patent show a striking correlation. There is no magic to Philibert's characterization of his OD calculations in relation to the lower limit of the rigid OD tolerance when the Mexican art's dimensions are quite close and produce the same result, i.e. compatibility with rigid conduit. The Mexican art, Exhibits 23 through 29, is deemed a prior publication which anticipated the invention.

E. Obviousness

A patent may not be granted if the ideas are obvious, 35 U.S.C. Sec. 103, that is, what are commonly known principles within the ability of one skilled in the art. The problem in the case at hand was the manufacture of a thin-walled conduit which could be threaded. The claim is to a unique solution using principles of mechanical engineering and mathematics.

What was readily known, or knowable to one skilled in the art of conduit design and manufacture, based on the Berger art and Mexican art and logic and common sense, dictated all the principles or claims made in the patent.

1. The wall thickness was to be approximately 60% of the thickness of rigid. There is nothing unique about this as a dimension. The purpose of IMC was to reduce the wall to be as thin as possible in order to reduce the metal used. Yet because threading, particularly with a taper. cuts into the wall, the wall had to be thick enough to accommodate the threading with enough depth to preclude the cutting process from breaching or altering the integrity of the inner wall, called breakthrough. One can readily see that the actual wall thickness is controlled by the depth of the cutting of the thread plus an additional thickness to provide metal in the wall under the threads, preserving the integrity of the inner wall surface and the holding power of the threads. Allied's target was a reduction of the rigid wall by 50%, but a thicker wall was necessary when compatibility was required since a taper of 3/4" per foot, required to match the rigid threading, produced a deeper cut into the wall.

2. The nominal OD selected by Philibert resulted from the need to reduce the OD to reduce the wall thickness but more significantly to permit the proper meshing of the threads with rigid fitting. This proposal was obvious.

3. The narrow tolerance on the outside diameter would also be a matter of simple logic. A high OD would counter the needs discussed in section 2 above, a low OD would result in a joint with inadequate holding power and an inadequate electrical ground across the joint, a necessity for safety.

4. Claim No. 2 of the patent, placing of thread on IMC, is a combination claim and adds nothing novel but merely implements the concept of Claim No. 1.

5. Claim No. 3 of the patent does not state the taper but requires a matching taper with that of rigid conduit in order to provide compatibility, a seemingly obvious statement.

6. Claim No. 4 of the patent specifies the use of the same thread cutting dies used for threading rigid conduit, an implementation or combination claim which adds nothing novel and is obvious in view of Claim No. 3.

7. The use of a 3/4" taper, as per Claim No. 5, is not novel and seemingly is required for compatibility as being the same taper of NPT thread used on rigid conduit.

8. Claim No. 7, a summary or combination claim, with specification of the various sized conduits' nominal and minimum ODs, add nothing to the earlier claims.

Faced with compatibility as a requisite, there were but four choices - (1) reduction of the OD and the ID, each to a degree to leave sufficient wall thickness as required for a 3/4" taper thread; (2) truncation of the thread to reduce the depth required to cut it into the wall; (3) increase the thread diameters to reduce the depth of the cut into the wall; and (4) add wall thickness by reducing the ID. Each of these was an obvious possibility. Philibert chose one, the first listed, and made the calculations required and based thereon, calculations which were within the ability

of anyone skilled in the art, controlled by the necessary and critical relationship between the thread diameters and the ID to permit proper threading but without break through. These calculations were straightforward mathematics. They were dictated by the known and requisite parameters of matching the rigid fittings, keeping the wall as thin as possible, and the requisite depth required to cut the thread. The testimony of plaintiff's witnesses on the obviousness of this process is credited.

Based on the prior art, the nominal or slight differences between the prior art (principally the Mexican diaries and the earlier Allied proposal) and Philibert's proposal in February 1974, the level of skill in the art could readily have applied the principles used by Philibert, and absent any other indicia of non-obviousness, the patent is found to be obvious. *Graham v. John Deere Co.*, 383 U.S. 1 (1966).

Defendant sought to counter the claim of obviousness by a claim that secondary considerations, as discussed in *Graham*, *id.* at 17, and *Gore*, 721 F.2d at 1555, dictate a finding of non-obviousness. While it may be said that a conduit of intermediate weight was needed, it was not singularly needed in the form of compatible conduit. Whether based on safety considerations or an accommodation to the fittings industry, compatibility represented a compromise by the ad hoc committee. Then intermediate weight conduit was to be compatible with rigid conduit and there was a need for a configuration and dimensions distinct from the allied proposal. Philibert's February 4, 1974, paper did not solve the problem as the dimensions adopted by the committee and

thereafter incorporated in the patent constituted substantial variations from those in the February 4, 1974 paper. As previously discussed, the UL standards of 1974 and Allied's actual manufacturing specifications, represented further changes for the purpose of preventing breakthrough. There was no evidence of substantial praise for Philibert. Given the ad hoc committee's participation in developing the final figures, and particularly that of Cole, and the reaction to the patent, praise is not manifest in the record. Allied's experimentation in manufacturing the product is discussed elsewhere, and lends no support to defendant's claim. There was some approbation at Philibert's original suggestion. The significance of this reaction is markedly diminished by the fact that that proposal did not carry the day, particularly with its 3/8" taper. Thus, the distinction between the February 4, 1974, proposal and the committee's approved version is important in this regard. The patent is couched in dimensions approved by the ad hoc committee and which emerged from the deliberations after substantial tinkering with Philibert's original proposal.

Assessing the invention with the insight of one skilled in the art at and prior to the time of the proposal, *see Gore*, 721 F.2d at 1553; *Rosemount, Inc. v. Beckmann Industries, Inc.*, 727 F.2d 1540, 1543 at n.3 (Fed. Cir. 1984); and as a whole, *Schenck v. Norstrom Corp.*, 713 F.2d 782, 785 (Fed. Cir. 1983), the Philibert concept was obvious though its formulation required numerous calculations. The lack of a prior solution, excepting Allied's non-compatible one and the Mexican art, suggests the lack of a motivation to

formulate and/or manufacture IMC rather than any insurmountable problem resolved by the patent.

F. Duty of Candor

Plaintiff has claimed that Philibert breached the duty of candor owed to the Patent Office, *see* 37 C.F.R. Sec. 1.56, which is tested by whether an examiner, knowing the undisclosed information, would have regarded it as significant in the decision as to whether or not to allow the patent. *American Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350, 1362 (Fed. Cir.), *cert. denied*, 105 S.Ct. 95 (1984). While the history of Philibert's "development" of the patent was material, it is unlikely that the examiner would have denied the patent on the ground that it was not Philibert's idea. The failure to include the Philibert paper dated February 4, 1974, and the absence of at least a summary of the ad hoc committee's work reflect a lack of candor on Philibert's part, and that of defendant which actually moved the application, but this information, by itself, would not necessarily have had a significant impact on the examiner's review of the application.

The draft standard for UL was part of the supplemental submission, but was identified as the work of Auerbach. It would have been significant to the examiner to have known the author of that material, particularly as other than Philibert, as such information would have reflected the development of the product and would have revealed the input of others. Further it would have prompted additional inquiry as to whether the idea was truly Philibert's as opposed to the combination of the deliberations of the ad hoc committee building on the Allied proposal. Failure

to credit Auerbach was not mere negligence nor even gross negligence; it was probably intentional. *See Kansas Jack, Inc. v. Kuhn*, 719 F.2d 1144, 1151 (Fed. Cir. 1983). The duty of Philibert, and defendant, to inform the Patent Office of all information material to the application was thus not complied with.

G. Estoppel

Plaintiff claims that by reason of the nature of the ad hoc committee's deliberations and its agreement to amend its IMC proposal in order to provide compatibility, that Philibert was under the duty to disclose to the ad hoc committee, and to Allied particularly, his intention to seek a patent. Based thereupon, plaintiff claims an estoppel against defendant's enforcement of the patent against it. No such disclosure, nor a disclaimer, was made by Philibert. The custom and practice of UL was not to develop products that would be the subject of a patent. The patent was unexpected by committee members. That Cole and Allied's personnel did not contemplate patent application on their work, suggests at least a tacit understanding that the work that the committee participated in would not be patented. It is illogical that so many in competing businesses would join in the development of a product in the course of the ad hoc committee's deliberations only to have one of the group assert an exclusive right to use the resulting idea, albeit one with a substantial involvement in the development. Clearly had the group or Allied known of the patent intention, their participation in the committee's deliberations, their agreement to permit Philibert's participation therein, and the acquiescence in an altered concept for IMC would

have been substantially different. The question is whether there was a misrepresentation by silence, i.e. whether Philibert had a duty to speak his intentions.

A representation must be material to form a basis for a claim of estoppel. Certainly it was material for plaintiff and others to know that a proprietary claim was going to be made to the altered form of the product which Allied proposed and which the committee aided in finalizing. There is little likelihood that any of the committee, nor Allied, would have committed so much time and effort to develop a feasible product only to have one participant put forth a proprietary claim thus precluding its manufacture and use except at the license of the one party. No less likely would have been allied's probable holding firm on its original proposal which, in February to April 1974, was so close to approval, had its exclusion from the alternative product's manufacture, except by license, then been made known to it. The issue is whether Philibert, under these circumstances, had a duty to disclose his intentions to assert a proprietary claim and thus exclude all of the others involved in the ad hoc committee's deliberations from the use, manufacture or sale of a product which resulted from the input thus derived.

Equitable estoppel has been applied where one acts or committed himself to act as a direct consequence of, or as a result of being led thereto by, the acts of another. *Stickle v. Heublein, Inc.*, 716 F.2d 1550, 1559 (Fed. Cir. 1983), citing *Dickerson v. Colgrove*, 100 U.S. 578, 580 (1879). Philibert clearly knew of Allied's intent to manufacture IMC, its original commitment to

incompatible IMC, its reluctance to alter its proposed IMC article for the 1975 NEC, its agreement to a compatible IMC, its urgent wish to get IMC approved in the 1975 NEC rather than suffer the delay until 1978, its contemplation for early production of IMC as soon as a UL standard could be promulgated, its work in finalizing an ad hoc committee formulation and the UL standard issued in October 1974, its actual commitment and sale of IMC under the formulation from late 1974 on. The patent was applied for in August 1974. Prior to the application, Philibert knew, and defendant being bound thereby had to have known, from February 4, 1974, when a patent possibility existed, during the entire ad hoc committee deliberations and thereafter while the patent application (in its original and renewed form) was pending until notice of infringement was given to plaintiff in 1978, of all these facts. The application did not disclose Allied's manufacture of the product. Suddenly in 1978, due to a long examination of the application, including three rejections for obviousness, with the patent in hand, General, now Philibert's assignee, claims infringement by manufacture of the product, which Allied basically proposed, in its final form to which Allied had substantially contributed.

Allied's claims of misrepresentation by the silence of Philibert is not a mere unilateral, after-the-fact expectation. A course of conduct on its part was clearly contemplated by all, including Philibert, and that was to manufacture and sell the product, which it proposed, as altered by the committee's deliberations to accommodate the wishes of the objectors to its proposal, including defendant. Allied, by acquiescing in the change of its proposal, thus became limited to manufacture of

the product which resulted from the committee's deliberations, only to have Philibert and defendant, after the fact, claim patent rights in the product which was derived from those deliberations. Philibert was not reticent to speak on behalf of defendant, his employer, for the purpose of obstructing the approval of Allied's proposal. Yet Philibert was totally silent as to his patent intentions while the committee debated, formulated and approved alternate dimensions for IMC which Philibert then incorporated into his patent application.

Under these facts, it was required that Philibert speak out and give notice of his intention to claim proprietary rights. To remain silent while Allied shifted its position and yielded the advantages of its two-year long effort to obtain approval of its proposed IMC and while a new form of IMC was developed, refined and recalculated was to lull Allied into an unalterable commitment to essentially the sole producible configuration as ultimately formulated by the committee. To find no duty in Philibert to disclose his intentions as to a proprietary claim and to permit him to have so forced, or participating in so forcing, Allied into its commitment to IMC as revised by the committee and then bar Allied from manufacture of that product or to be able to force Allied to pay a royalty for the privilege of manufacturing that product is clearly within the concept of equitable estoppel. In good faith, Allied had participated extensively in initiating and developing the product which evolved and is claimed to be subject to the patent, including the substantial effort to obtain trade approval, NEC inclusion and UL standards. To permit the development of the product under

these circumstances, the sole product which could thereupon be manufactured and to which plaintiff would thus be limited, without disclosure by Philibert would be unconscionable.

Defendant must, therefore, be held estopped from enforcing any patent that it may have, if it has any, at least as against Allied. All of the elements requiring and authorizing an estoppel exist here, plaintiff's ignorance of the intended patent application, the silence of Philibert in the face of a duty to disclose the intended application, plaintiff's reliance on the silence which thus constituted a misrepresentation, the inducement by Philibert of Allied's course of action based on such reliance, damages in the preclusion of manufacturing any other IMC, and damages in the form of a royalty obligation as an unanticipated cost of the manufacture if the patent were enforced. *See Volk v. Foundation for Christian Living*, 534 F. Supp. 1059, 1085 (S.D. N.Y. 1982); *Kierulff v. Metropolitan Stevedore Co.*, 315 F.2d 839 (9th Cir. 1963). Philibert's silence in the face of his clear intent to apply for a patent was intentionally misleading as to constitute bad faith. *Studiengesellschaft Kohle v. Eastman Kodak Co.*, 616 F.2d 1315, 1330 (5th Cir.), *cert. denied*, 101 S.Ct. 573 (1980), citing *TMW Manufacturing Co. v. Dura Corp.*, 592 F.2d 346, 350 (6th Cir. 1979).

Thus if the patent herein were valid, plaintiff would have an irrevocable, non-exclusive, non-assignable royalty-free license by implication therein.

H. Infringement

Even if the patent is valid, plaintiff claims it is not making the patented product and, therefore, is not infringing. What plaintiff is making has been thoroughly discussed above. Defendant disavows the prior art, but the only difference between the Mexican art and defendant's patent lies in the dimensions. Defendant relies heavily on the principles of a wall thickness 60% of the wall thickness of rigid conduit, an OD reduced to approximate the low range of tolerance of the OD of rigid conduit, an OD tolerance of .010" in the smaller sizes and .020" in the larger sizes, plus a standard NPT thread with a 3/4" taper. It argues that the precise dimensions of the Mexican art as compared to the patent, measured in thousandths of an inch, are sufficiently different as not to bar its patent as anticipated by the prior art. If prior art infringes a patent, it would disclose the patent and bar its validity. Thus, defendant argues that the patent dimensions distinguish it from the slightly different Mexican dimensions which would thus not teach the patent and would not infringe it. It follows that a restrictive view thus adopted by defendant may not be reversed to an expansionist view to the patent when claiming infringements. Thus defendant may not portray the patent as consisting of only a preferred embodiment with considerable flexibility as to the claims in seeking enforcement. If plaintiff were not strictly limited, then the patent would be overbroad, without adequate delineation and unreasonably preemptive of the field. Further, the claim, against a challenge of obviousness lies not in the general principles but in the precise calculations. So restricted, the patent cannot be

enforced substantially beyond its specified dimensions.

Allied manufactures a product, the wall thickness of which is 60% to 72% of that of rigid, substantially higher than the patent specifications. Further, Allied has at various times truncated the thread and threaded short. In this regard it is not appropriate to note that the court has calculated that the lower limits of the Mexican tolerance in contrast to the lower limits of the rigid tolerance ranges from -3.0% to +.8%, an average of -1.21%, and the deviation of the upper limits of the Mexican tolerance from the lower limit of the rigid tolerance extends from a -2.3% to a +1.2%, an average of -.5%. Comparing these percentages of deviation with the different wall thickness used by Allied suggests therein a greater deviation from the patent dimensions and claims. Those variations are sufficient to avoid infringement of Claims 1A, 2 as incorporating 1A, 4, 5 as incorporating 2, and 7A. While Allied's OD has not been shown to vary substantially from that set forth in the patent, the wall thickness tolerances have been increased in accordance with the UL standard. While it cannot be said that Allied is and has been manufacturing a product totally different from that described in the patent, it is only because we are dealing with a very simple device, a tubular configuration made in ten trade sizes. The necessity of compatibility with rigid conduit, and of cutting a thread compatible with rigid conduit into the IMC wall limits each size. While the court has not sustained the validity of the patent for reasons set forth above, if it is valid at all, the variations in Allied's practice do not constitute infringement, as they are as materially different from the patent as is the Mexican art.

IV. *Attorney's Fees/Disbursements*

While plaintiff has prevailed, the court declines to award attorney's fees and disbursements. Philibert and General were presented to the court more as opportunists who overreached than as intentional deceivers of either their fellow members of the trade at the ad hoc meetings or at the Patent Office. While equitable favor clearly lies against Philibert and General, their conduct was not so reprehensible as to constitute the exceptionable case required by 35 U.S.C. Sec. 285 before fees and disbursements may be awarded. The conduct of Philibert and General leading to the patent was far from a reflection of the epitome of candor and integrity, but it cannot be said to constitute fraud. *Hycore Corp. v. Schluecter Co.*, 740 F.2d 1529, 1540-41 (Fed. Cir. 1984); *see Kramer v. Duralite Co.*, 514 F.2d 1076 (2d Cir.), *cert. denied*, 432 U.S. 927 (1975).

For the foregoing reasons, judgment shall enter for plaintiff finding the patent invalid and unenforceable.

SO ORDERED.

Dated at Hartford, Connecticut, this 25th day of March, 1985.

/signed/
Peter C. Dorsey
United States District Judge

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Robert A. Philibert

Serial No. 499,387 Art Unit 353

Filed: August 21, 1974 Examiner: Thomas F. Callaghan

For: PROCESS FOR FORMING INTERMEDIATE METAL CONDUIT

AMENDMENT

Honorable Commissioner of Patents and Trademarks,
Washington, D. C. 20231.

Sir:

In response to the Final Rejection of September 9, 1975, please amend the above-identified patent application as follows:

In the Claims

Please cancel claims 1-16 and substitute the following new claims:

17. A method of producing intermediate metal conduit, in accordance with National Electrical Code standards and in conventional trade sizes, such that fittings designed for a particular size of rigid metal conduit can be used interchangeably with a corresponding size of such intermediate metal conduit, comprising the steps of:

(a) forming a wall thickness for the intermediate metal conduit which is approximately sixty per cent of the wall thickness for the corresponding size of rigid metal conduit;

(b) forming a nominal outside diameter for the intermediate metal conduit which corresponds substantially

with the lower end in the wide tolerance range for the outside diameter of the corresponding size of rigid metal conduit;

(c) forming an inside diameter for the intermediate metal conduit which corresponds with the difference between the aforesaid nominal outside diameter and twice the aforesaid wall thickness for the intermediate metal conduit;

such that when an external thread of predetermined taper is provided on said intermediate metal conduit as formed, the threaded fittings designed for the corresponding size of rigid conduit are compatible with and engage said external thread on said intermediate metal conduit.

18. A method as defined in claim 17, further comprising the step of maintaining a narrow total tolerance, of the order of .010 inches for the smaller sizes and of the order of .020 inches for the larger sizes, on the outside diameter in forming said intermediate metal conduit.

19. A method as defined in claim 17, further comprising the step of forming the external thread on said intermediate metal conduit with the same taper as the external thread on the rigid conduit.

20. A method as defined in claim 19, in which the step of forming the external thread is performed by the same sized threading die as is conventionally used on said conduit.

21. A method as defined in claim 19, in which said external thread on said intermediate metal conduit is formed to have a taper of three-quarter inch per foot.

22. A method as defined in claim 19, in which said thread is formed with a taper of three-eighth inch per foot.

23. An article of manufacture, comprising intermediate metal conduit produced in accordance with National Electrical Code standards and in conventional trade sizes, and which is compatible with rigid metal conduit such that fittings designed for a particular size of rigid metal conduit can be used interchangeably with a corresponding size of such intermediate metal conduit,

said intermediate metal conduit having a wall thickness which is approximately sixty per cent of the wall thickness for the corresponding size of rigid metal conduit;

said intermediate metal conduit having a nominal outside diameter which corresponds substantially with the lower end in the wide tolerance range for the outside diameter of the corresponding size of rigid conduit, and having an inside diameter which corresponds with the difference between the aforesaid nominal outside diameter and twice the aforesaid wall thickness for the intermediate metal conduit,

such that when an external thread of predetermined taper is provided on said intermediate metal conduit as formed, the threaded fittings designed for the corresponding size of rigid conduit are compatible with and engage said external thread on said intermediate metal conduit.

24. The article as defined in claim 21, further comprising an external thread on said intermediate metal conduit having the same taper as the external thread on the rigid metal conduit.

25. The article as defined in claim 22, in which said external thread on the intermediate metal conduit has been formed by the same sized threading die as is conventionally used on rigid metal conduit.

26. The article as defined in claim 24, in which said external thread on said intermediate metal conduit is formed to have a taper of three-quarter inch per foot.

27. The article as defined in claim 24, in which said external thread on said intermediate metal conduit is formed to have a taper of three-eighth inch per foot.

REMARKS

This amendment after FINAL REJECTION follows an interview conducted with Examiner Callaghan on October 30, 1975. Attending that interview, in addition to John F. Ohlandt, Esq., were Robert A. Philibert, inventor of the subject matter of this application; Fred Reker, Vice President of Engineering of O.Z./Gedney, a unit of General Signal Corporation which is the assignee of the present application; and Milton E. Kleinman, Esq., patent counsel for General Signal. The courtesies extended by Mr. Callaghan to applicant and his representatives are herewith acknowledged.

The discussion at the interview on October 30th centered chiefly on the fact that the subject matter of the present invention is clearly unobvious, and substantial evidence to this effect was referred to, namely, a collection of letters, reports, memos and the like, which refers to the problems arising in connection with the adoption of so-called IMC (intermediate metal conduit), and to a series of meetings by representatives of conduit fittings manufacturers and others which were held to try to solve those problems.

A Declaration Under Rule 132 is herewith submitted in the name of the applicant, Robert A. Philibert, and accompanying that Declaration and annexed thereto is the aforesaid collection of documents. Although the materials are voluminous, it was felt that in order to fulfill applicant's stringent duty of candor, it was incumbent upon him to furnish as complete a history as possible of the development of applicant's invention.

The Examiner commented at the interview that the evidence was impressive with regard to the question of the unobviousness of the invention and especially its unobviousness to experts in the field, despite its seeming simplicity, and he acknowledged that he could appreciate the clear-cut advantages of the invention. However, he expressed some misgivings about the claims then present in the case, and indicated that they appeared to be unduly broad and that they should be further amended.

Although conceding that some language could be added to the claims in order perhaps to make them more definite, it was pointed out by applicant's attorney that the essential concept, contrary to prior art teaching, of forming the nominal outside diameter for the intermediate metal conduit so that it corresponds substantially with the lower end in the wide tolerance range for the outside diameter of rigid metal conduit, was already expressed in the claims. However, applicant's attorney also pointed out that the "subject matter as a whole" must be considered as consisting in the recognition of the essential problem as it existed in connection with the proposals for IMC and also in the solution originated by applicant. The essential problem is the one thoroughly discussed in previous amendments and at the interview, namely, the problem of achieving compatibility or interchangeability so that the same fittings can be used for both types of conduit.

This "subject matter as a whole" which constitutes applicant's contribution to the art is now definitely and unequivocally expressed in, for example, new claim 17 which is a method claim and includes the steps found in paragraphs (a), (b) and (c). Thus method claim 17 and its dependent claims clearly define applicant's contribution, while conforming to the provision of the third paragraph of 35 U.S.C. 112:

> "An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure,

material, or acts described in the specification and equivalents thereof."

It is to be especially noted that the step recited in paragraph (b) of claim 17 comprises: forming the nominal outside diameter as already indicated, the function or purpose of so forming being, as expressed in the last paragraph, that when an external thread of predetermined taper is provided on the IMC, the threaded fittings designed for the corresponding size of rigid conduit are compatible with and engage said external thread on said intermediate metal conduit. In other words, this unequivocal function follows precisely from the combination of steps previously recited and particularly from the step defined in paragraph (b). Were it otherwise; that is, if the nominal OD were not formed precisely in the way claimed, but formed as in the prior art with the same nominal OD, the externally formed threading on the IMC would then cut through the IMC, assuming that the taper were 3/4"/ft. (Fig. 1 of applicant's drawing); on the other hand, if resort were had to a 3/8"/ft. taper for the external threading, the particular fitting could not then be engaged (Fig. 2); hence, compatibility and interchangeability would be lost. Thus, the objectives of enabling threaded fittings designed for one type to be used with both types of conduit, and permitting use of the same threading dies, could not be accomplished. Moreover, even though applicant's invention accomplishes the foregoing primary objectives, there are other, ancillary, objectives that are likewise fulfilled. For example, the IMC precisely formed in accordance with applicant's invention can also be utilized with threadless fittings (see pages 4 and 14 of the specification). Further, the possibility is left open that, rather than applying the normally desired thread of 3/4"/ft. taper to the IMC, a different taper, such as 3/8"/ft. or even no taper, can be employed (see bottom of page 16 of the specification). Accordingly, complete compatibility is retained, and fittings having threads of varying taper can be used interchangeably on rigid conduit and IMC having a predetermined matching taper for their external threads.

It will be seen that the article claims, i.e., claims 23-27, are likewise drawn to the fundamental concept of the present invention in its several aspects, and cover the article produced by the process defined in claims 17-22. For the same essential reasons as advanced above in respect to the process claims, these article claims are patentable to applicant.

It should also be noted that at the interview the Examiner commented that "conduit" is a very broad term. Accordingly, applicant has clearly defined "conduit" in the claims as conventionally understood; that is, as a product in accordance with National Electrical Code standards and formed in exemplary trade sizes (see Table II on pages 10 and 11 of applicant's specification). It will further be understood that conventional dimensions for rigid electrical conduit pretty much follow conventional U. S. pipe dimensions, as can be seen in Table I on pages 8 and 9. In this connection, applicant's attorney pointed out that such conventional trade sizes are of course transitory, since the U. S. may soon go to a metric system and standard dimensions may be altered. Hence, applicant cannot limit his claims to precise dimensions, the principle of applicant's invention being manifestly applicable to a variety of different standard dimensions or trade sizes.

It is respectfully solicited that applicant has fully met his burden of persuasion by reason of the evidence adduced on the question of unobviousness and by the discussion at the interview and the remarks herewith and in previous amendment, and is therefore entitled to the claim coverage presented herewith for his unique contribution.

Accordingly, it is requested that this amendment after Final Rejection be entered and that the application be passed to issue with allowance of claims 17-27.

It is understood that a further thirty day extension will be granted upon receipt of this fully responsive amendment, whereby the statutory deadline will become February 9, 1976, a previous request for a thirty day extension having already been filed. If this understanding is not correct, applicant herewith specifically requests such an extension.

Respectfully submitted,

/s/ JOHN F. OHLANDT
John F. Ohlandt
Attorney for Applicant

White Plains, New York 10601
(Tel. 914 - 949-3389)

December 19, 1975

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Robert A. Philibert

Serial No. 499,387 Art Unit 353

Filed: August 21, 1974 Examiner: Thomas F. Callaghan

For: PROCESS FOR FORMING INTERMEDIATE METAL CONDUIT

DECLARATION UNDER RULE 132

I, ROBERT A. PHILIBERT, declare as follows:

I am presently self-employed and I was formerly Vice President of Research and Engineering for O.Z./Gedney Company, a unit of General Signal Corporation, the assignee of the above-identified patent application;

that I am the inventor of the subject matter of that application, filed August 21, 1974, which pertains to a process for forming intermediate metal conduit and the article resulting therefrom;

that attached to this declaration are copies of various reports, memos, letters, and the like, identified as Exhibits A-T, which refer to the problems which arose in connection with the adoption of standards for a new type of conduit, similar to rigid conduit but having a wall thickness sixty per cent thereof, to be known as intermediate metal conduit (IMC), its standards to be set forth in Article 345 of the National Electrical Code;

that over a period of thirty years, there have been various suggestions that a form of conduit having the aforesaid wall thickness be adopted and implemented by industry and, that as will be seen from the first Exhibit, Exhibit A, a fact-finding report on what was then known as utility grade rigid steel conduit was made on November 27, 1972 and, as will further

be seen on page 3 of that report (column 3 of Table I), it was proposed that the same nominal O. D. dimensions be provided for the utility grade rigid steel conduit (now called IMC), as was utilized for standard rigid steel conduit;

that it was thereafter proposed, as evidenced by letter of June 26, 1973 (Exhibit C) to R. A. Philibert from Allied Tube & Conduit Corporation that a 3/8"/ft. taper be applied to the aforesaid IMC;

that this latter proposal of a 3/8/"ft. taper introduced a serious problem in that compatibility or interchangeability was not afforded because the fittings designed for standard or conventional rigid conduit could not be used on the newly proposed IMC, and therefore solutions were sought, as indicated by Exhibit E, in which, for example, there is suggested the possibility of using adapters, or altering the rigid conduit to accept the newly proposed conduit threads on special order;

that various reports and letters, annexed as Exhibits G through T, make reference to a series of ad hoc committee meetings on the subject of IMC, such meetings being held at various times in 1974 beginning with the meeting of February 7, 1974 (Exhibit G);

that the meetings noted above were held to find a solution to the aforesaid compatibility problem associated with the adoption of standards for IMC;

that, as evidenced by the aforesaid Exhibits G-T, and especially by Exhibit G, page 42 thereof, it was foreseen that a high degree of confusion would exist in the industry if the threads for IMC were to have the proposed pitch of 3/8" per foot taper versus 3/4" per foot taper for rigid conduit;

that several proposals were finally made with regard to solutions to the aforesaid problems;

that one of these proposals, called proposal 52, which is referred to in my letter to George Dienes of February 25, 1974 (Exhibit G), and also referred to in a memo of John

B. Crosby of February 26, 1974 (Exhibit H), was concerned with swaging or roll-forming or the like (as described in the report at the end of Exhibit G and entitled "Recommendations for Adapting Intermediate Grade Conduit for NPT Threads", known hereinafter as "Crouse-Hinds proposal");

that the second proposal at the meeting of February 7, 1974 was made by me and involved the concept of selecting the nominal outside diameter for the IMC so that it corresponds with the lower end of the normal production outside diameter for the rigid conduit;

that in the first instance a consensus developed in regard to the Crouse-Hinds proposal, as reflected in my letter of February 25, 1974 to George Dienes;

that the various exhibits marked G through T, clearly demonstrate that a number of experts in the field were concerned with the problem of compatibility or interchangeability, yet none of these experts suggested what I had proposed;

that upon further study it became recognized by some of the experts (Exhibit M), that my proposal clearly had merit in that it achieved compatibility, since the same fittings could be used on both of the aforesaid types of conduit;

that such compatibility is realized without the need for special tools for the purpose of swaging or the like;

that my proposal has now been adopted in connection with the issuance of proposed requirements by the Underwriters Laboratories for IMC (Exhibit T, Table 8.1);

that my proposal as described above corresponds with the concept defined in the claims of the present application;

that I have read the reference (Patent 3,858,911 to Martin) cited by the Examiner and the Examiner's Office Actions in the application;

that the reference cited in no way suggests or hints at the problems raised by the adoption of standards for IMC and indicates no recognition of such problems, but simply describes

a piping system consisting of a thin walled steel pipe with a copper or bronze fitting, valve, adapter or the like, and that therefore this reference offers no solution whatever for the aforesaid problems and is not pertinent thereto precisely because it does not teach the concept of forming IMC in a particular size with a nominal outside diameter which corresponds with the lower end in the range for the outside diameter comparably sized rigid conduit;

that accordingly the invention of the present application, as defined in the claims herewith submitted, is clearly patentable to applicant.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

/s/ ROBERT A. PHILIBERT
Robert A. Philibert

Date: 12/13/75

O.Z. GEDNEY COMPANY
A UNIT OF GENERAL SIGNAL • TERRYVILLE CONNECTICUT 06786
TELEX NO. 962447 TELEPHONE 203-684-0571

March 15, 1974

Mr. Jack M. Beall
Jones & Laughlin Steel Corp.
908 Warren Avenue
Niles, Ohio 44446

Dear Jack:

It was again a pleasure to visit with you when we attended the U.L. Intermediate Metal Conduit Ad Hoc Meeting held in Pittsburgh on March 13, 1974.

After I left the meeting, it occurred to me that you and other members of the Steel Conduit Industry may not have received a copy of a proposal that we had submitted at a previous meeting on how Intermediate Conduit should be dimensioned and threaded, so it would be compatible with existing Rigid Conduit Fittings both the threaded and unthreaded type. We had originally submitted this paper, but withdrew it in favor of swedging the ends of the IMC, and threading it with chasers having a 3/4" per foot taper. However, after thinking over what occurred at the meeting earlier this week, it became evident to us that U.L. does not want to go along with the swedged-end method, since they anticipate it will cause too many Field problems, and would require changing the proposed paragraph in the National Electric Code.

We feel that the next best alternative is to use the principles outlined in our paper - that is, to make the conduit to the lower end of the Rigid Metal tolerance, and to thread it with chasers having a 3/8" per foot taper. Since preparing the paper, we have made some additional refinements which will enable the IMC Manufacturers to have a wider range of tolerances, both for the OD, ID and the number of gauging turns on the threading. We also have checked this by making sample pipe

and sample threads on the minimum, nominal and maximum tolerance. It all works out using the present wall thickness proposed on the size we tried out. What is also interesting is that if the Contractor in the Field uses NPSM Dies or uses 3/4" Tapered Dies, theoretically they will not break through the ID. For our example we will use the 1/2" IMC size, since the problem is more severe on the smaller sizes than it is on the large sizes.

> We would propose that the OD of 1/2" IMC be .815" ± .005" or .820" to .810". If 1/2" IMC has a .065" wall thickness, then the ID will be .690" to .680".
>
> The thread that we propose would have an E_o of .768" to .758". The dedendum of the thread would be .023", or would have a width on the flat at the minor diameter of P/8 or .009". The minimum minor diameter would be .758" - .046" = .712". The minimum thickness under the thread would be .011" to a maximum of .021". An NPT thread has a theoretical minor diameter at E_o of .758" - .057" = .701". An NPSM external thread to which conduit in the Field is frequently cut has a minimum minor diameter of .725".

We wish to pass on this information to you for your review. If you are in agreement with it, you may wish to pass it on to others in the Steel Conduit Industry for their comments. To assist you in this matter, I am forwarding ten additional copies of the paper. We believe that there is a thread design that we

can use that will make the IMC compatible with existing rigid fittings. Let's work towards that goal.

Best regards

O.Z./GEDNEY COMPANY

Robert A. Philibert
Vice President Engineering

RAP/tc
cc: Cir. & Eng. Cir.

Corrected Charts

CONFIDENTIAL

PROPOSED STANDARD FOR

INTERMEDIATE METAL CONDUIT

TO

UNDERWRITERS' LABORATORIES, INC.

BY

ALLIED TUBE & CONDUIT CORP.

April 26th, 1974